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April 14, 1995

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Mr. William F. Caton
Secretary
Federal Communications Commission
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Re: **IC Docket No. 94-31**

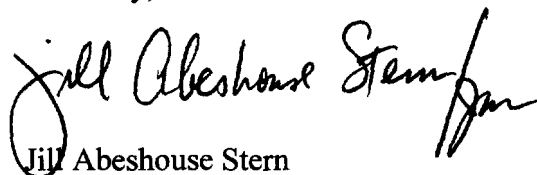
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Dear Mr. Caton:

On behalf of CTA Commercial Systems, Inc. ("CTA"), I am transmitting herewith an original and six copies of its "Reply Comments" with respect to the Commission's Second Notice of Inquiry relating to the 1995 World Radiocommunication Conference.

Should there be any questions concerning this matter, kindly communicate with the undersigned.

Sincerely,


Jill Abeshouse Stern

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In the Matter of)
)
Preparation for International)
Telecommunication Union World)
Radiocommunication Conferences)

IC Docket No. 94-31

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REPLY COMMENTS

CTA Commercial Systems, Inc. ("CTA"), by its attorneys, hereby submits its reply comments with respect to the Commission's Second Notice of Inquiry ("Second NOI") relating to the 1995 World Radiocommunication Conference ("WRC-95") and future WRCs.^{1/}

As one of seven pending applicants in the Non-Voice Non-Geostationary Mobile Satellite Service ("NVNG MSS"), CTA strongly recommended, in its March 6, 1995 comments, that the United States seek allocation at WRC-95 of an additional 7 to 10 MHz of spectrum below 1 GHz to support the proposed systems and the publicly beneficial services they will provide. The need for additional spectrum has been accelerated by the filing of new proposals, in the United States and worldwide, and the anticipated market demand for Little LEO services. To meet this demand, CTA urged the Commission to consider both government and non-government bands as candidates for re-allocation, based on the demonstrated ability of NVNG MSS systems to share with existing terrestrial systems.^{2/} The recent Conference Preparatory Meeting (CPM) in Geneva

^{1/} FCC 95-36, released January 31, 1995.

^{2/} See Recommendation ITU-R M.1039 (Method for Evaluating Sharing Between Stations in the Mobile Service Below 1 GHz and FDMA Non-geostationary Satellite Orbit Mobile Earth Stations)

further demonstrated the critical need for an unequivocal United States position with respect to NVNG MSS spectrum at WRC-95.

In its comments, CTA also supported the relaxation or revision of technical and allocation constraints on the non-geostationary MSS in the international radio regulations. These include: modifying the secondary status of allocations in the 137-138 MHz band to account for the transitioning of the MetSats out of that band; obtaining a generic allocation for MSS in the 149.9-150.05 MHz band; replacing the current PFD limits in the 148-150.05 MHz band, as set forth in RR608A and RR608B, with a coordination triggering mechanism; and eliminating RR608C which imposes secondary restrictions on use of 148-149.9 MHz in specified countries.

The initial comments share CTA's position that the need for an additional 7 to 10 MHz of NVNG MSS spectrum at WRC-95 is critical.^{31/} All of the Little LEO parties agree that the preferable spectrum is in the 100-500 MHz bands, and that NVNG MSS systems can share with existing services in those bands. There is also broad support for the revision or elimination of unnecessary technical constraints on this service.

While various land mobile and business radio users have expressed opposition to sharing spectrum with the NVNG MSS, this opposition is not based on specific technical analysis and relies solely on general arguments as to the number of systems and services licensed in the range of 100-500 MHz. In order to address these arguments most effectively, and to identify the optimal candidate bands for allocation to NVNG MSS, CTA and other LEO applicants have

^{31/} See Comments of E-SAT, Inc.; Comments of Leo One USA Corporation; Comments of STARSYS Global Positioning, Inc.; Comments of GE American Communications, Inc.; Comments of Orbital Communications Corporation; Comments of Final Analysis Communication Services, Inc.

retained technical consultants to undertake detailed technical analyses and field testing of the bands between 100-500 MHz in order to assess accurately the level of usage in these bands. Based on the preliminary results of these studies, it is apparent that, while there are a significant number of systems in the subject bands, the level of usage is not uniform. There are a number of bands where the level of usage is significantly lower. To confirm this preliminary conclusion based on detailed review of the Commission's licensee data base, the parties plan to undertake extensive field testing.

While the parties are working diligently to gather empirical information that will support allocation of specific bands to the NVNG MSS, this work will take several more weeks to complete. Due to the geographic scope of the field tests, and the need to develop appropriate computer programs in connection with the tests, the work could not be completed in time to meet the April 14 filing date. However, the parties have filed a joint motion for an extension of time to file additional reply comments incorporating these test results by May 15, 1995.

I. THE COMMENTS PROVIDE EVIDENCE OF THE STRONG NEED FOR ADDITIONAL NVNG MSS SPECTRUM IN THE 100-500 MHZ BANDS

The comments of other NVNG MSS applicants provide evidence of the strong need for additional NVNG MSS spectrum, and unanimously urge the Commission to seek an allocation of 7 to 10 MHz of spectrum at WRC-95 to support the U.S. Little LEO systems. The comments agree that the current spectrum will be inadequate to accommodate the anticipated growth in the number of systems, in the U.S. and worldwide, and the level of capacity required to meet market demand for NVNG MSS services.^{4/}

^{4/} See Orbcomm Comments at 3-5; Comments of Leo One at 3-4; Comments of GE Americom at 6-9.

The comments also document the criteria for selecting frequencies and the reasons why spectrum between 100-500 MHz is most desirable for this service. The comments point out that: (1) frequencies in the VHF/UHF band are particularly well-suited to low-cost terminal production; (2) the use of higher frequencies approaching 1 GHz, puts upward pressure on terminal prices, thereby diminishing the utility of the low-cost messaging band; (3) it is desirable to have a minimum of 5-7% separation between uplink and downlink bands to allow for sufficient filtering of the signals; and (4) the requirements for uplink and downlink spectrum are different, because of the greater difficulty of sharing downlink bands.^{5/}

The comments also point to the work already done within the ITU-R to demonstrate the ability of NVNG MSS systems to share with fixed and mobile users and other satellite services. These studies, which were adopted in the CPM Report, conclusively demonstrate that NVNG MSS systems can share with terrestrial users. It bears emphasis that these ITU recommendations are not limited to the existing allocations, but are generally applicable to the 100-500 MHz bands. As demonstrated in theoretical studies and in actual field tests, NVNG MSS (FDMA) systems use frequency agile band scanning techniques to find open channels prior to transmission. The satellite system throughput requires a clear channel, and the channel is occupied just for the duration of the transmission and then released. This "permissive access" approach ensures that the satellite will not interfere with existing users. It also requires a sufficiently large bandwidth to facilitate band scanning.

^{5/} Consistent with CTA's comments, Leo One points out, for example, that "satellite uplink receivers can operate with other services because terrestrial transmitters do not cause a significant amount of interference to the satellite and the satellite is able to scan over a wide geographic area to find open channels." Leo One Comments at 8-9.

The NVNG MSS parties have identified the following bands as potential candidates for inclusion in the United States WRC-95 proposals: (1) 138-144 MHz; (2) 157.0375-174 MHz; (3) 216-218 MHz and 219-220 MHz; (4) 312-315 MHz; (5) 387-390 MHz; and (6) 450-470 MHz. The comments point out that the downlink and uplink allocations need not be equivalent. Leo One suggests, for example, an allocation of 387-390 MHz (downlink) and 450-457 MHz (uplink) would meet the needs of the NVNG MSS industry.^{6/}

II. THE LAND MOBILE COMMENTS DO NOT ACKNOWLEDGE THE DEMONSTRATED SHARING ABILITY OF NVNG MSS SYSTEMS

While none of the comments questions the need for additional NVNG MSS allocations, opposition has been expressed to the inclusion of land mobile and private radio bands as spectrum candidates for NVNG MSS.^{7/} The opposition by these parties is apparently based on a general unwillingness to share spectrum, rather than upon a specific technical analysis of the sharing capabilities of proposed NVNG MSS systems. In this regard, none of the comments acknowledges the significant theoretical work within ITU Task Group 8/3 that has established recommendations for sharing between NVNG MSS systems and terrestrial users (e.g., ITU-R M.1039.)^{8/} As noted, these recommendations were adopted at the Conference Preparatory Meeting in Geneva in March-April, 1995.

^{6/} Leo One Comments at 11.

^{7/} See Comments of the Association of American Railroads (AAR); Comments of the Utilities Telecommunications Council (UTC); Comments of the Association of Public-Safety Communications Officials-International, Inc. (APCO); and Comments of Motorola, Inc.

^{8/} These recommendations were cited in the CPM Report adopted at the recent Conference Preparatory Meeting in Geneva. There is no technical basis for the statement in the AAR Comments that these recommendations are inapplicable to the non-government bands between 100-500 MHz. While heavily used bands are less desirable as sharing candidates, there are a number of bands between 100-500 MHz where the usage is relatively low.

In opposing the proposed allocations, the commenting parties provide general information about the types of services provided in the 100-500 MHz bands and the number of users, without distinguishing among the various frequency bands within that range. As these parties are well aware, the diversity of use within these bands makes generalizations difficult as to the level of usage and the particular users. Preliminary research by the Little LEO companies demonstrates that there is a wide variation in the level of usage and the number of licensed systems, if the usage is considered on a frequency-by-frequency basis. While many bands are heavily used, others are not used as extensively. Similarly, some bands are more suitable candidates based on the typical communications involved. The objective of the technical analysis being undertaken by the Little LEO proponents is to identify the bands where NVNG MSS systems can share most effectively. The broad-brush approach of the land mobile parties does not contribute to the identification of the optimal bands for sharing which CTA believes is the critical task ahead.

III. THE LITTLE LEO COMPANIES ARE UNDERTAKING TECHNICAL STUDIES AND FIELD TESTS TO IDENTIFY THE OPTIMAL BANDS

In order to address the concerns of the land mobile and private radio community, CTA and other Little LEO applicants are undertaking, in conjunction with technical consultants, detailed analyses of the relevant frequency bands between 100-500 MHz to identify the optimal bands from a sharing standpoint. In these analyses, factors considered include the number of licensed systems, the type of use, and the level of existing usage. Analysis has proceeded under the assumption that the most suitable candidate bands will be the ones in which (1) there is a relatively smaller number of transmitters; (2) the use is intermittent, i.e., push-to-talk variety; and (3) the licensed users may not actually be using the licensed facilities, e.g., licensees may have

transitioned to other bands because of the availability of new technologies such as cellular telephones.

In addition to reviewing the Commission's data base, the Little LEO applicants are also gathering empirical evidence including field tests to determine the actual level of activity in the candidate bands. It was not possible to complete these tests in time to meet the April 14, 1995 reply date. For this reason, the parties have jointly requested an extension of time to file additional reply comments following completion of the field tests.

IV. GOVERNMENT BANDS MUST ALSO BE CONSIDERED

In its comments, CTA recommended that both government and non-government bands must be considered as candidates. The Commission has previously acknowledged the potential suitability of government bands for NVNG MSS, particularly the 312-315 MHz and 387-390 MHz bands. These bands are now allocated, on a secondary basis, outside the United States for non-geostationary satellite systems. Moreover, a number of other administrations are in the process of ITU notification/coordination for non-U.S. systems using these bands. Given these developments, it is imperative that the Commission encourage NTIA to engage in an open and immediate dialogue with industry about the potential for shared use of these bands within the United States.

NTIA has not filed comments with respect to the proposals of CTA and others to use the government spectrum (387-390 MHz) for downlink use.

V. CONCLUSION

For reasons set forth herein and in CTA's opening comments, the Commission should recommend that the United States (1) seek allocation of an additional 7 to 10 MHz of spectrum at WRC-95 for non-geostationary MSS below 1 GHz; and (2) remove or revise international radio regulations that inhibit or constrain beneficial NVNG MSS use by the public.

Respectfully submitted,

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April 14, 1995

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CERTIFICATE OF SERVICE

I, Felecia G. DeLoatch, do hereby certify that a true and correct copy of the foregoing "Reply Comments" was sent by first-class mail, postage prepaid, or hand-delivered, on this 14th day of April, 1995, to the following persons.

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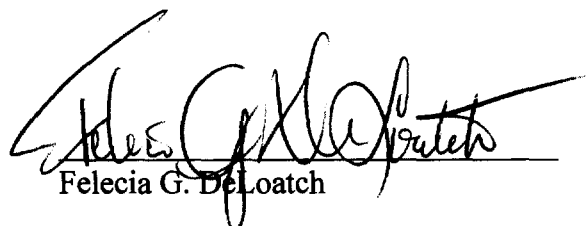
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